

REMARKS/ARGUMENTS

Claims 1-2, 4, 6-18 remain pending in the instant application. Applicant kindly requests favorable reconsideration.

Amendments to the Claims

Claim 1 is amended to include the subject matter of dependent claim 5, and intervening dependent claim 3. Claims 3 and 5 are cancelled without disclaimer or prejudice to the subject matter thereof nor to their subsequent reintroduction in this or a continuing application. Claims 4 and 6, previously dependent upon claim 3, are amended to depend from claim 1. No new matter has been added by these amendments. Claim 9 is amended for clarity only, and no new matter has been added.

Additionally, new claim 18 is introduced, and recites the subject matter of claim 1 before the foregoing amendments, and in addition recites that in the antireep layer arranged around the inner sheath, comprised of at least one winding with contiguous edges, the winding is of a strip with high mechanical properties, and the strip being woven of very strong fibers. This feature is fully supported in the original specification as filed, for example at para. [0030] (with reference to Application Publication 2006/0191587, dated August 31, 2006). No new matter has been added.

Objections to the Claims

Claim 17 is object to for lack of antecedent basis in the term “the other pair of armor plies”. Claim 17 is amended above to depend from claim 16, which recites “another pair of alternate or imbricated crossed armor plies.” Additionally, for the elimination of all potential ambiguity, claim 17 recites “the lay angles of the another ~~other~~-pair of alternate or imbricated crossed armor plies...” (markup per 37 C.F.R. § 1.121) Therefore, Applicant respectfully submits that the terms as used in claim 17 have ample antecedent basis. This amendment adds no new matter, and is merely tangential to the merits of the claim. Favorable reconsideration and withdrawal of the objection is kindly requested.

Rejection under 35 U.S.C. § 112

Claims 12 and 13 are rejected under 35 U.S.C. § 112, second paragraph, as indefinite in the term “at least one other of the armor plies” in claim 12, and “the lay angle of the other armor ply is substantially equal to the lay angles A and B of the first pair of armor plies” in claim 13. In response, claim 12 is amended to recite “at least one other ~~of the armor plies~~ ply”, and claim 13 is amended to recite “the lay angle of one of the ~~at least one~~ other armor ply is substantially equal to one of the lay angles A ~~and or~~ B of the first pair of armor plies” (markup per 37 C.F.R. § 1.121). The amendments are merely editorial in nature, and no new matter has been added.

Applicant respectfully submits that the rejection of claims 12 and 13 has been obviated, and kindly requests favorable reconsideration and withdrawal.

Rejection under 35 U.S.C. § 102

Claims 1, 2, 10, 14 and 15 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,934,335 to Hardy (“Hardy”). Applicant respectfully traverses the rejection. Claim 1 as amended above includes features previously recited in cancelled claims 3 and 5. The Office Action does not offer Hardy to teach these features. It has been said by the courts “As we have repeatedly stated, anticipation requires that each limitation of a claim must be found in a single reference.” *Teleflex, Inc. v. Ficosa North American Corp.*, 299 F.3d 1313, 63 USPQ2d 1374 (Fed. Cir. 2002). Therefore, Applicant respectfully submits that claim 1 is patentably distinguished over Hardy.

Claims 2, 10, 14 and 15 each depend, either directly or indirectly, from independent claim 1, and incorporate its features by reference. These dependent claims are each separately patentable, but in the interest of brevity are offered as patentable for at least the same reasons as their underlying independent base claim. Therefore, Applicant respectfully submits that the rejection over Hardy has been obviated, and kindly requests favorable reconsideration and withdrawal.

Rejection under 35 U.S.C. § 103

Claims 3, 6, 11-13, 16 and 17 stand rejected under 35 U.S.C. § 103(a) as obvious over Hardy in view of U.S. Patent No. 5,813,439 to Herrero, *et al.* (“Herrero”). Applicant respectfully traverses the rejection. Claim 1 as amended above includes features previously

recited in cancelled claim 5. The Office Action does not offer Hardy nor Herrero to teach these features, singly or in combination.

Claims 6, 11-13, 16 and 17 each depend, either directly or indirectly, from independent claim 1, and incorporate its features by reference. These dependent claims are each separately patentable, but in the interest of brevity are offered as patentable for at least the same reasons as their underlying independent base claim. Therefore, Applicant respectfully submits that the rejection over Hardy and Herrero has been obviated, and kindly requests favorable reconsideration and withdrawal.

Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as obvious over Herrero in view of U.S. Patent No. 3,481,368 to Vansickle, *et al.* ("Vansickle"). Applicant respectfully traverses the rejection.

Applicant traverses the rejection because the Office action does not allege that Herrero teaches all features of underlying independent base claim 1. Moreover, the Office Action relies upon Hardy in rejecting claims 3 and 4, but does not name Hardy in the statement of rejection.

Moreover, Applicant considers that the text of the Office Action discusses features recited in claims 4 and 5, not 3 and 4. In the event that the Office Action would consider making a future non-final rejection of claim 5 over some hypothetical combination of Hardy, Herrero, and Vansickle, present claim 1, which includes the features of claim 5, is nonetheless patentably distinguished.

As disclosed in the present specification, in particular page 2, lines 18-20, the invention is concerned with a pipe of the unbonded type with no "pressure vault" (in French, "voûte de pression" from the priority document), i.e., one without the specific windings at short pitch designed to resist internal and/or external pressures, such windings being traditionally interlocking steel wires. Instead the pipe of the present disclosure comprises tensile armor wound at dissymmetrical angles around 55°, and an anticreep layer made of a strip.

The Office Action applies Hardy as teaching the features of claim 1 as previously presented. In particular, the Office Action equates the layer (3) of Hardy to such an anticreep layer. Applicant respectfully disagrees that Hardy discloses an anticreep layer arranged around the inner sheath and comprised of at least one winding with contiguous edges, the winding being of a strip with high mechanical properties.

Hardy is concerned with two different and mutually exclusive embodiments.

The first embodiment of Hardy, represented on Fig.1, and detailed on col. 4, lines 19, *et seq.*, shows an embodiment having a pressure vault, precisely that layer 3 called a "pressure resisting member made from a T-section, Z-section or U-section wire helically wound with a close pitch and with the turns clipped together". This is exactly the interlocked pressure vault that the present claims avoid.

In the original French language priority document corresponding to the American patent to Hardy (*i.e.*, W0 96/30687), the layer 3 is clearly labeled "'voûte de pression". In this embodiment, it is explained that the traction armors 4 can be laid with complementary angles around 55°. In contradistinction therewith, the anticreep layer of the invention is only made of a strip wound with contiguous edges. It is not made of interlocked wires as a pressure vault. Thus Hardy does not anticipate the anticreep layer of original claim 1. In any case, it clearly does not anticipate the new claim 18 because it does not show nor suggest a strip woven from strong fibers nor suggest them, as the ordinarily skilled artisan would not, without more, consider to nor expect success by replacing the interlocked steels wires of Hardy with simple windings of a woven strip of fibers. Hardy does not either anticipate the new amended claim 1 as it does not suggest any of the features of former claim 3 and claim 5.

The second embodiment of Hardy is represented at Fig. 2 and is described col. 6, lines 61, *et seq.* This embodiment has no "layer of reinforcement of the pressure", *i.e.*, no pressure vault, but only traction armors 4. This second embodiment of Hardy embodiment differs from the features of independent claims 1 and 18 in that the armors 4a are both wound with angles of 55°, and no longer complementary. Moreover, this second embodiment of Hardy clearly does not show any anticreep layer analogous to that of the present independent claims. Therefore, this second embodiment cannot anticipate the claimed invention either.

The Office Action applies Herrero to supplement Hardy, in order to reach the features of claim 3. Herrero is concerned with several embodiments of pipes. In the embodiment of Fig.2 cited by the Office Action, the pipe has two layers of armors: the inner layer is a layer of interlocked wires with a lay angle of 75° and the second an layer of not interlocked wires with a lay angle of 28°. None of these angles can be said to be close to 55°, as required by claim 1 of the present invention. In the alternative embodiment of Fig. 3, there are two pairs of armors, each pair comprising wires wound with the exactly the same winding angle but only opposite directions. Both are distinguishable from the recited features of claim 1. Moreover, in both

embodiments, as the inner layer is interlocked, there are no risks that creeping can occur, as is admitted at column 7, lines 7-10. Thus, Herrero cannot and does not teach or suggest the addition of any anticreep layer such as the one recited in claim 1.

The Office Action suggests that it would have been obvious to provide a layer of taping into which the armor wire is able to penetrate, but this is absolutely not supported by Herrero who only says (col. 11, line 9) in a general statement: "It is possible to insert various webs such as protective sleeves or tapings or of optional thermal insulation between the armoring webs or between the inner sealing sleeve and the inner armoring web or else between the outer armoring web and the outer sleeve". Nothing in the reference suggests that these webs could be thick and flexible enough to permit penetration, nor that the shape of the armors themselves permits penetration. In fact, the armors illustrated in Herrero, which are interlocked, specifically do not permit penetration in an adjacent layer. So there is no suggestion possible of the feature originally in claim 3, now recited in claim 1, according to which "there is a flexible adjacent layer into which at least one wound reinforcing wire is able to penetrate at least partially", and no suggestion either of the feature of the former claim 5 according to which "the at least one wound reinforcing wire that is able to penetrate at least partially into the flexible layer comprises a round wire or strand". On the contrary, the armors shown in Herrero have a flat side as seen on Figs. 4 - 7, and are not round in shape.

Thus it is clear that amended claim 1 is not suggested by the combination of Hardy and Herrero.

Turning then to Vansickle, the reference is concerned with hoses of the bonded type, not unbonded structure as in the present invention. The behavior of the different layers in a bonded and in an unbonded pipe have nothing in common. As such, the ordinarily skilled artisan is not inclined to mix the teachings of references concerning totally different techniques.

In order to be relevant prior art to show the obviousness of a claimed invention, the references must either be (1) within the Applicant's field of endeavor, or (2) reasonably pertinent to the particular problem with which the inventor was involved. *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992).

As to the first test, whether the reference is within Applicant's field of endeavor, it is clear error to too broadly define the field of endeavor. *Id.* "This test does not make the assessment of the field of endeavor a wholly subjective call for the examiner. The examiner and

the Board must have a basis in the application and its claimed invention for limiting or expanding the scope of the field of endeavor.” *In re Bigio*, 381 F.3d 1320, 72 USPQ2d 1209 (Fed. Cir. 2004). “[I]t is necessary to consider ‘the reality of the circumstances’--in other words, *common sense*--in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.” *Id.* (emphasis supplied). Accordingly, the court in *Clay* rejected the proposition that the reference was analogous to the claimed invention “[M]erely because both relate to the petroleum industry.” *Clay, supra*, 966 F.2d at 659, 23 USPQ2d at 1060. Similarly, in *Wang Laboratories, Inc. v. Toshiba Corp.*, the court stated “The [prior] art is not in the same field of endeavor as the claimed subject matter merely because it relates to memories. It involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories.” 993 F.2d 858, 864, 26 USPQ2d 1767, 1773 (Fed. Cir. 1993). *See also, Neato, LLC v. Rocky Mountain Traders*, 138 F. Supp.2d 245, 252 (D. Conn. 2001) (citing *Clay*, “Where the challenged invention is directed to a different purpose than the prior art, the inventor would have been less motivated to consider the prior art thereby militating against a conclusion that such prior art is analogous.”).

Moreover, the Courts have held that while “Those of ordinary skill in the art may be presumed to have knowledge of arts ‘reasonably pertinent to the particular problem with which the inventor was involved.’ ... prior art may not be gathered with the claimed invention in mind.” *Pentec, Inc. v. Graphic Controls Corp.*, 227 USPQ 766, 768-69, 776 F.2d 309 (Fed. Cir. 1985) (citation omitted)

Further, in *Vansickle*, the wire “do[es] not tend to penetrate the wall of the elastomeric liner tube 11 either during the forming operation, while the said liner is in uncured condition, nor subsequently thereto during use of the hose at which time the tube is in vulcanized condition” (col. 2, line 29-33). Thus, if there is a teaching in *Vansickle*, that teaching leads away the person of ordinary skill away from claim 1, where penetration of the wire in a flexible layer is sought. A prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983).

The Office Action goes on to allege that it has not been shown why it is important to have round wires and why it would not have been obvious to the skilled man, relying on an

unsupported assertion of “obvious choice”, or what may otherwise called a ‘design choice’. However, the court has been clear that ‘design choice’ is insufficient basis to support an obviousness rejection. “In a proper obviousness determination, whether the changes from the prior art are minor, the changes must be evaluated in terms of the whole invention, ... This includes what could be characterized as simple changes...” *In re Chu*, 66 F.3d 292, 36 USPQ2d 1089 (Fed. Cir. 1995) (internal quotes and citation omitted). Accordingly, Chu held that the PTO erred in finding that the difference between the claimed invention and the prior art was merely a matter of “design choice.”

Moreover, in this particular case the proposed substitution is not obvious or even appropriate. As mentioned in the instant specification, not only the present invention aims at solving problems of creeping, but also problems of rotation of the unbonded pipe, for example as described page 3, first paragraph of the specification, and the control of the play between wires as described page 6, first paragraph. This problem is linked to the specific application of the invention for a rotary hose, in which the pipe undergoes excessive and repeated bending which tend to disorganize the wires in the armor plies.

The disorganization of the armor wires has a detrimental consequence, namely the increase of the maximal play between two adjacent wires, and therefore an increased risk of creeping in these zones where the play is maximal. To address this problem, this would necessitate an anticreep layer more efficient, more resistant and which is accordingly more expensive. It is then necessary to try to solve all the above problems at the same time. The penetration of wires in the adjacent flexible layer solves the problem of the disorganization of the wires, because the penetration tends to set their position in a permanent manner. That penetration is all the better as the wires are round, because the contact pressure with round wires is higher than with flat wires. But, as mentioned for example, paragraph [0017]), a detrimental effect of the use of round wires in unbonded pipes (and thus an effect not present in the literature relative to bonded pipes such as Vansickle) is the promotion of torsion in the pressurized pipe, and thus the use of round wires is not common in unbonded pipes. Accordingly, the person of ordinary skill in the art is not willing to use them. However, according to the present independent claims, it has become possible to use them satisfactorily because the claimed configuration counteracts this negative effect by the lay angle asymmetry. Thus, the invention as

claimed in the amended claim 1 is concerned with a combination of features that is not at all obvious.

Therefore, neither Hardy, Herrero nor Vansickle, taken singly or in combination, teaches or suggests an anticreep layer of any kind, nor a penetration of the flexible layer, and particularly not, as the Office Action itself admits, any penetration by a wound reinforcing wire comprising a round wire or strand. It is well-settled that to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Accordingly, even presuming that there was some apparent reason to combine the references, which Applicant specifically disputes above, independent claims 1 and 17 are nonetheless patentably distinguished.

Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as obvious over Hardy in view of U.S. Patent No. 4,403,631 to Abdullaev, *et al.* ("Abdullaev"). Applicant respectfully traverses the rejection. Claim 1 as amended above includes features previously recited in cancelled claim 5. The Office Action does not offer Hardy nor Abdullaev to teach these features, singly or in combination.

Claims 7 and 8 each depend, either directly or indirectly, from independent claim 1, and incorporate its features by reference. These dependent claims are each separately patentable, but in the interest of brevity are offered as patentable for at least the same reasons as their underlying independent base claim. Therefore, Applicant respectfully submits that the rejection over Hardy and Abdullaev has been obviated, and kindly requests favorable reconsideration and withdrawal.

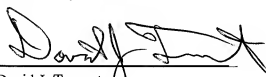
Conclusion

In light of the foregoing, Applicant respectfully submits that all claims are patentable, and kindly solicits an early and favorable notice of allowability.

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DJT:lf

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